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# MSDS

MATERIAL SAFETY DATA SHEET

TITANIUM ALLOY GRADE 5 ELI

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AUSTENITIC CR-NI ALLOY AISI 303

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AUSTENITIC CR-NI ALLOY AISI 316L

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MARTENSITIC STAINLESS STEEL AISI 420 MOD

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COBALT-CHROMIUM-MOLYBDENUM ALLOY

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CHROMIUM CARBONITRIDE COATING [DLC]

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GOLD-PALLADIUM ALLOY CERAMICOR®

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POLYETHER ETHER KETONE [PEEK]

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POLYOXYMETHYLENE [POM]

MSDS-ENG-02-DSS

20-07-2016

**1. PRODUCT AND COMPANY IDENTIFICATION****1.1. Product identifier**

Titanium alloy grade 5 ELI [Titanium alloy grade 23, Ti-6Al-4V ELI]

Titanium Straight Abutment, Titanium Angled Abutment, Titanium Personalized Abutment, Healing Abutment, Temporary Abutment, Multiunit and Uniabutment Converters, Titanium Interface, Occlusal Screws, Screws for Impression Transfer.

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

For various use in dental implantology. Use for dental applications only.

**1.3. Details of the supplier of the safety data sheet**

Terrats Medical SL  
Avda. La Ferrería 62  
08110 Montcada i Reixac, Barcelona  
SPAIN  
info@dess-abutments.com

**1.4. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture**

Solid Metallic product.

**2.2 Label elements**

N/A

**2.3 Other hazards**

Titanium alloys in their solid state present no inhalation, ingestion or contact health hazard. However, inhaling welding fumes, mists or dust which may be generated during certain manufacturing process (melting, welding, burning, sawing, grinding, machining) may be hazardous to your health. Dusts may be also irritating to the unprotected skin or eyes.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substances**

C: max 0.08%  
N: max 0.05%  
Fe: max 0.25%  
Al: 5.5 – 6.5%  
V: 3.5 – 4.5%  
O: max 0.13%  
Ti: BALANCE

**3.2 Mixtures**

N/A

**4. FIRST AID MEASURES****4.1 Description of first aid measures**

Depending on route of entry:

- **INHALATION:** Immediately remove victim to fresh air. If condition persists, consult physician.
- **EYE CONTACT:** Immediately flush with running water to remove particulates, consult physician.
- **SKIN CONTACT:** If irritation develops, remove clothing and wash with soap and water. If condition persists, consult a physician.
- **INGESTION:** Consult physician.

**4.2 Most important symptoms and effects, both acute and delayed**

- **ACUTE EFFECTS:** Excessive exposure to welding fumes or dust may cause irritation of eyes, nose or throat. Inhalation of dusts may result in metal fume fever (metallic taste in mouth, dryness and irritation of throat, fever).
- **CHRONIC EFFECTS:** Prolonged inhalation of welding fumes or dusts may cause skin sensitization, neurological damage and respiratory disease such as bronchial asthma, lung fibrosis or pneumoconiosis.

**4.3 Indication of any immediate medical attention and special treatment needed**

N/A

**5. FIREFIGHTING MEASURES****5.1 Extinguishing media**

Use a D-Class fire extinguisher, dry sand, dry graphite, or inert gas.

**5.2 Special hazards arising from the substance or mixture**

**GENERAL FIRE HAZARD:** None for solid formed product. Nonflammable.

This solid formed product does not constitute a fire or explosion hazard. Finely divided chips may present a fire and explosion hazard in the presence of an ignition source. Auto-ignition temperature for powder in air: 249°C.

**5.3 Advice for firefighters**

**DO NOT USE** water or CO<sub>2</sub> extinguishers as these agents may cause an explosion.

**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

None

**6.2 Environmental precautions**

None

**6.3 Methods and material for containment and cleaning up**

No special procedures needed.

**6.4 Reference to other sections**

N/A

**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

No protective measures required in condition as delivered.

**7.2 Conditions for safe storage, including any incompatibilities**

No protective measures required in condition as delivered. Keep away from incompatible materials (see section 10). No other specific storage requirements for solid form product.

**7.3 Specific end use(s)**

N/A

**8. EXPOSURE CONTROLS, PERSONAL PROTECTION****8.1 Control parameters**

N/A

**8.2 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding or welding this material. Use appropriate protective clothing such as welding aprons and gloves when welding or burning.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/Metallic
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.2 Other information**

N/A

**10. STABILITY AND REACTIVITY****10.1 Reactivity**

Stable under normal conditions of use, storage and transport for solid product.

**10.2 Chemical stability**

No decomposition takes place if used as prescribed.

**10.3 Possibility of hazardous reactions**

Contact with certain acids may result in the release of gaseous acid decomposition products (e.g. hydrogen).

**10.4 Conditions to avoid**

Contact with incompatible materials. Avoid creating finely divided, concentrated airborne particulates in the presence of ignition sources.

**10.5 Incompatible materials**

Acids, Oxidizing Agents, Halogens. Reacts with strong acids to form explosive hydrogen gas and heat.

**10.6 Hazardous decomposition products**

No dangerous decomposition products are known. Welding fumes, gases and dusts may occur through treatment of the metal, including metal and metallic oxide fumes. Reaction with water, steam, acids, etc. can evolve hydrogen, which is highly dangerous fire and explosion hazard.

**11. TOXICOLOGY INFORMATION****11.1. Information on toxicological effects**

Studies have indicated that after interaction of the clean surface with the atmosphere titanium metal build immediately a passive titanium dioxide layer. This coating protects the metal from further reaction. Furthermore, transformation testing has shown that titanium metal compared to titanium dioxide has a similar release rate of titanium ions. In view of this, it may be assumed that human exposure towards titanium metal is secondary to that of titanium dioxide.

- ORAL ACUTE TOXICITY: Has been determined in a study with titanium dioxide, oral LD<sub>50</sub> >5000 mg/kg bw/day.
- DERMAL ACUTE TOXICITY: Unknown
- INHALATION ACUTE TOXICITY: Negligible
- SKIN/EYE/RESPIRATORY TRACT IRRITATION/SENSITIZATION: Not irritating/Not sensitizing.
- MUTAGENICITY: Not mutagen.
- CARCINOGENICITY: Not carcinogen.

**12. ECOLOGICAL INFORMATION****12.1. Toxicity**

Titanium is solid, compact and not soluble in water. Non-hazardous.

**12.2. Persistence and degradability**

Not relevant.

**12.3. Bioaccumulative potential**

N/A

**12.4. Mobility in soil**

N/A

**12.5. Results of PBT and vPvB assessment**

N/A

**12.6. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.1. Waste treatment methods**

Scrap materials should be recycled, according to local regulations.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.1. UN number**

N/A

**14.2. UN proper shipping name**

N/A

**14.3. Transport hazard class**

N/A

**14.4. Packing group**

N/A

**14.5. Environmental hazards**

N/A

**14.6. Special precautions for user**

N/A

**14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION****12.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law.

**12.2. Chemical safety assessment**

A chemical safety assessment for titanium has been performed.

**16. OTHER PRECAUTIONS**

Information included in this document was obtained from sources which we believe are reliable. However, Terrats Medical S.L. does not give any assurance with the view of completeness and validity. Because the conditions or methods of handling, storage, use and/or disposal of this product are beyond the control and knowledge of the manufacturer, he cannot assume responsibility for adverse events which may occur in the use and/or misuse of this product. This Material Safety Data Sheet serves only as guideline for adequate handling of the material by an educated person.

**1. PRODUCT AND COMPANY IDENTIFICATION****1.5. Product identifier**

Austenitic Chromium – Nickel alloy AISI 303 [A1 Stainless Steel, SUS 303]

Impression Transfer, Analogue.

**1.6. Relevant identified uses of the substance or mixture and uses advised against**

For various use in dental implantology. Use for dental applications only.

**1.7. Details of the supplier of the safety data sheet**

Terrats Medical SL  
Avda. La Ferrería 62  
08110 Montcada i Reixac, Barcelona  
SPAIN  
info@dess-abutments.com

**1.8. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.4 Classification of the substance or mixture**

Solid Metallic product.

**2.5 Label elements**

N/A

**2.6 Other hazards**

Chromium – Nickel alloys in their solid state present no inhalation or ingestion health hazard. Inhaling welding fumes, mists or dust which may be generated during certain manufacturing process (melting, welding, burning, sawing, grinding, machining) may be irritating to the respiratory tract. Alloy may be skin sensitizer and cause contact dermatitis. Nickel is classified by International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans, and the classification rules of the European Directive 99/45/EC state that all preparations containing 1% Nickel or more must be classified as suspect carcinogen. However this information do not apply to the product itself, but only on dust and vapours generated on working with it. Although there are no test data, there are no reported cases of any health problems from exposure to this product. Manganese fume may cause “metal fume fever” with symptoms of fever, nausea, cough, chills, weakness, muscle aches, dry throat and a sweet or metallic taste in the mouth. Prolonged or repeated exposure may affect the nervous system. May also affect the respiratory system with pneumonia-like illness. Iron oxide can cause irritation of the eyes, nose and skin. As a normal precaution, excessive dusting or inhalation of fines should be avoided.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.3 Substances**

Cr: 17.0 – 19.0 % (Mass)

Mn: 2.0 % max. (Mass)  
Si: 1.0 % max. (Mass)  
C: 0.1 % max. (Mass)  
Ni: 8 – 10 % (Mass)  
P: 0.045 % max. (Mass)  
S: 0.15 – 0.35 % (Mass)  
N: 0.11 % max. (Mass)  
Cu: 1.0 % max. (Mass)  
Fe: BALANCE

### 3.4 Mixtures

N/A

## 4. FIRST AID MEASURES

### 4.4 Description of first aid measures

- INHALATION: Supply for fresh air, consult physician upon continuous irritation.
- EYE CONTACT: Dust or powder should be flushed from the eyes with running water for 15 minutes to remove particulates. If irritation persists consult physician. Note that nickel alloy particles are magnetic. However, this effect may be weak and particles may not respond to a magnet placed over the eye.
- SKIN CONTACT: Skin contamination with dust or powder can be removed with soap and water. If irritation develops, consult a physician.
- INGESTION: Consult physician. If a large dose has been consumed, give 1 – 2 glasses of milk or water and induce vomiting. Never induce vomiting to an unconscious person!

### 4.5 Most important symptoms and effects, both acute and delayed

- ACUTE EFFECTS: Excessive exposure to welding fumes or dust may cause irritation of eyes and nose, and gastrointestinal disorder may occur. After ingestion – nickel is poison by ingestion. Acute dose may cause intestinal disorders, convulsions and asphyxia. Chromium may cause gastrointestinal effects. Inhalation of manganese fume may cause metal fume fever with symptoms of chills, fever, nausea, cough and a sweet or metallic taste in mouth. Nickel may cause irritation to the upper respiratory tract, nasal cavities and pulmonary asthma.
- CHRONIC EFFECTS: Nickel may cause pneumonitis. Chromium may cause histologic fibrosis of lungs and lung cancer. Individuals who may have had allergic reactions to metals may encounter contact dermatitis or skin rash, if skin contact occurs. Rare cases of asthma have been reported to have occurred in individuals exposed to some forms of particulates. If the material is absorbed via oral for long period, although is poorly absorbed from the gastrointestinal tract, may be absorbed as the soluble nickel ion Ni<sup>+2</sup>, and then will be concentrated in kidneys, lungs, liver, heart, testes and spinal cord. Manganese may affect central nervous system. Symptoms: difficulty in walking and balancing, cramps or weakness in the legs, trouble with memory or judgement, hoarseness of the voice, unstable emotions or unusual irritability.

### 4.6 Indication of any immediate medical attention and special treatment needed

N/A



**5. FIREFIGHTING MEASURES****5.4 Extinguishing media**

CO<sub>2</sub>, powder or inert gas fire extinguisher, foam, water.

**5.5 Special hazards arising from the substance or mixture**

GENERAL FIRE HAZARD: None for solid formed product. Nonflammable.

This solid formed product does not constitute a fire or explosion hazard. At the contrary, if the material is fine divided (powder) it can explode at open air.

**5.6 Advice for firefighters**

A breathing apparatus should be worn when fighting metal dust fires. Collect contaminated firefighting water separately.

**6. ACCIDENTAL RELEASE MEASURES****6.5 Personal precautions, protective equipment and emergency procedures**

Avoid powder formation.

**6.6 Environmental precautions**

No special measure is necessary.

**6.7 Methods and material for containment and cleaning up**

No special procedures needed.

**6.8 Reference to other sections**

N/A

**7. HANDLING AND STORAGE****7.4 Precautions for safe handling**

No protective measures required in condition as delivered.

**7.5 Conditions for safe storage, including any incompatibilities**

No protective measures required in condition as delivered. Keep away from incompatible materials. No other specific storage requirements for solid form product.

**7.6 Specific end use(s)**

N/A

**8. EXPOSURE CONTROLS, PERSONAL PROTECTION****8.3 Control parameters**

N/A

**8.4 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding or welding this material. Use appropriate protective clothing such as welding aprons and gloves when welding or burning.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.3 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/White metallic
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.4 Other information**

N/A

**10. STABILITY AND REACTIVITY****10.7 Reactivity**

This is a stable material.

**10.8 Chemical stability**

No decomposition takes place if used as prescribed.

**10.9 Possibility of hazardous reactions**

Contact with incompatible materials as strong acids may result in the release of gaseous decomposition products (e.g. hydrogen, which is highly explosive if mixed with atmospheric air).

**10.10 Conditions to avoid**

Contact with incompatible materials. Avoid creating finely divided, concentrated airborne particulates in the presence of ignition sources.

**10.11 Incompatible materials**

Strong Acids, Strong Oxidizing Agents, Halogens, Interhalogens, Ammonia, Sulphur.

**10.12 Hazardous decomposition products**

Metal oxide fumes.

**11. TOXICOLOGY INFORMATION****11.2. Information on toxicological effects**

No dangerous reactions have been reported by exposure to massive forms of chrome - nickel alloys. If however, converted to particulates then both acute and chronic health hazards are possible.

**12. ECOLOGICAL INFORMATION****12.7. Toxicity**

Chrome – Nickel alloy is solid, compact and not soluble in water. Slightly hazardous for water.

**12.8. Persistence and degradability**

Components are not biodegradable.

**12.9. Bioaccumulative potential**

N/A

**12.10. Mobility in soil**

N/A

**12.11. Results of PBT and vPvB assessment**

N/A

**12.12. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.2. Waste treatment methods**

Because scrap materials contains heavy metals should be disposed environmentally friendly, according to local regulations. However this alloy is not considered as dangerous goods.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.8. UN number**

N/A

**14.9. UN proper shipping name**

N/A

**14.10. Transport hazard class**

N/A

**14.11. Packing group**

N/A

**14.12. Environmental hazards**

N/A

**14.13. Special precautions for user**

N/A

**14.14. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION****12.3. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law.

**12.4. Chemical safety assessment**

A chemical safety assessment for Chrome – Nickel alloys has been performed.

**16. OTHER PRECAUTIONS**

Information included in this document was obtained from sources which we believe are reliable. However, Terrats Medical S.L. does not give any assurance with the view of completeness and validity. Because the conditions or methods of handling, storage, use and/or disposal of this product are beyond the control and knowledge of the manufacturer, he cannot assume responsibility for adverse events which may occur in the use and/or misuse of this product. This Material Safety Data Sheet serves only as guideline for adequate handling of the material by an educated person.

**1. PRODUCT AND COMPANY IDENTIFICATION****1.9. Product identifier**

Austenitic Chromium – Nickel alloy AISI 316L [Marine grade stainless extra low carbon grade, Surgical Stainless Steel, SUS 316L]

Laboratory Handle, Dentist Handle.

**1.10. Relevant identified uses of the substance or mixture and uses advised against**

For various use in dental implantology. Use for dental applications only.

**1.11. Details of the supplier of the safety data sheet**

Terrats Medical SL  
Avda. La Ferrería 62  
08110 Montcada i Reixac, Barcelona  
SPAIN  
info@dess-abutments.com

**1.12. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.7 Classification of the substance or mixture**

Solid Metallic product.

**2.8 Label elements**

N/A

**2.9 Other hazards**

Chromium – Nickel alloys in their solid state present no inhalation or ingestion health hazard. Inhaling welding fumes, mists or dust which may be generated during certain manufacturing process (melting, welding, burning, sawing, grinding, machining) may be irritating to the respiratory tract. Alloy may be skin sensitizer and cause contact dermatitis. Nickel is classified by International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans, and the classification rules of the European Directive 99/45/EC state that all preparations containing 1% Nickel or more must be classified as suspect carcinogen. However this information do not apply to the product itself, but only on dust and vapours generated on working with it. Although there are no test data, there are no reported cases of any health problems from exposure to this product. Manganese fume may cause “metal fume fever” with symptoms of fever, nausea, cough, chills, weakness, muscle aches, dry throat and a sweet or metallic taste in the mouth. Prolonged or repeated exposure may affect the nervous system. May also affect the respiratory system with pneumonia-like illness. Iron oxide can cause irritation of the eyes, nose and skin. As a normal precaution, excessive dusting or inhalation of fines should be avoided.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.5 Substances**

Cr: 16.0 – 18.0 % (Mass)

Mn: 2.0 % max. (Mass)  
Si: 0.75 % max. (Mass)  
C: 0.035 % max. (Mass)  
Ni: 10 – 15 % (Mass)  
P: 0.045 % max. (Mass)  
S: 0.03 % (Mass)  
Mo: 2.0 – 3.0 % max. (Mass)  
Fe: BALANCE

### 3.6 Mixtures

N/A

## 4. FIRST AID MEASURES

### 4.7 Description of first aid measures

- INHALATION: Supply for fresh air, consult physician upon continuous irritation.
- EYE CONTACT: Dust or powder should be flushed from the eyes with running water for 15 minutes to remove particulates. If irritation persists consult physician. Note that nickel alloy particles are magnetic. However, this effect may be weak and particles may not respond to a magnet placed over the eye.
- SKIN CONTACT: Skin contamination with dust or powder can be removed with soap and water. If irritation develops, consult a physician.
- INGESTION: Consult physician. If a large dose has been consumed, give 1 – 2 glasses of milk or water and induce vomiting. Never induce vomiting to an unconscious person!

### 4.8 Most important symptoms and effects, both acute and delayed

- ACUTE EFFECTS: Excessive exposure to welding fumes or dust may cause irritation of eyes and nose, and gastrointestinal disorder may occur. After ingestion – nickel is poison by ingestion. Acute dose may cause intestinal disorders, convulsions and asphyxia. Chromium may cause gastrointestinal effects. Inhalation of manganese fume may cause metal fume fever with symptoms of chills, fever, nausea, cough and a sweet or metallic taste in mouth. Nickel may cause irritation to the upper respiratory tract, nasal cavities and pulmonary asthma. Overexposure to molybdenum causes anaemia, gout-like syndrome and increases uric acid levels.
- CHRONIC EFFECTS: Nickel may cause pneumonitis. Chromium may cause histologic fibrosis of lungs and lung cancer. Individuals who may have had allergic reactions to metals may encounter contact dermatitis or skin rash, if skin contact occurs. Rare cases of asthma have been reported to have occurred in individuals exposed to some forms of particulates. If the material is absorbed via oral for long period, although is poorly absorbed from the gastrointestinal tract, may be absorbed as the soluble nickel ion Ni<sup>+2</sup>, and then will be concentrated in kidneys, lungs, liver, heart, testes and spinal cord. Manganese may affect central nervous system. Symptoms: difficulty in walking and balancing, cramps or weakness in the legs, trouble with memory or judgement, hoarseness of the voice, unstable emotions or unusual irritability.

### 4.9 Indication of any immediate medical attention and special treatment needed

N/A

**5. FIREFIGHTING MEASURES****5.7 Extinguishing media**

CO<sub>2</sub>, powder or inert gas fire extinguisher, foam, water.

**5.8 Special hazards arising from the substance or mixture**

GENERAL FIRE HAZARD: None for solid formed product. Nonflammable.

This solid formed product does not constitute a fire or explosion hazard. At the contrary, if the material is fine divided (powder) it can explode at open air.

**5.9 Advice for firefighters**

A breathing apparatus should be worn when fighting metal dust fires. Collect contaminated firefighting water separately.

**6. ACCIDENTAL RELEASE MEASURES****6.9 Personal precautions, protective equipment and emergency procedures**

Avoid powder formation.

**6.10 Environmental precautions**

No special measure is necessary.

**6.11 Methods and material for containment and cleaning up**

No special procedures needed.

**6.12 Reference to other sections**

N/A

**7. HANDLING AND STORAGE****7.7 Precautions for safe handling**

No protective measures required in condition as delivered.

**7.8 Conditions for safe storage, including any incompatibilities**

No protective measures required in condition as delivered. Keep away from incompatible materials. No other specific storage requirements for solid form product.

**7.9 Specific end use(s)**

N/A

**8. EXPOSURE CONTROLS, PERSONAL PROTECTION****8.5 Control parameters**

N/A

**8.6 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding or welding this material. Use appropriate protective clothing such as welding aprons and gloves when welding or burning.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.5 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/White metallic
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.6 Other information**

N/A

**10. STABILITY AND REACTIVITY****10.13 Reactivity**

This is a stable material.

**10.14 Chemical stability**

No decomposition takes place if used as prescribed.

**10.15 Possibility of hazardous reactions**

Contact with incompatible materials as strong acids may result in the release of gaseous decomposition products (e.g. hydrogen, which is highly explosive if mixed with atmospheric air).

**10.16 Conditions to avoid**

Contact with incompatible materials. Avoid creating finely divided, concentrated airborne particulates in the presence of ignition sources.

**10.17 Incompatible materials**

Strong Acids, Strong Oxidizing Agents, Halogens, Interhalogens, Ammonia, Sulphur.

**10.18 Hazardous decomposition products**

Metal oxide fumes.

**11. TOXICOLOGY INFORMATION****11.3. Information on toxicological effects**

No dangerous reactions have been reported by exposure to massive forms of chrome - nickel alloys. If however, converted to particulates then both acute and chronic health hazards are possible.

**12. ECOLOGICAL INFORMATION****12.13. Toxicity**

Chrome – Nickel alloy is solid, compact and not soluble in water. Non-hazardous if not discarded.

**12.14. Persistence and degradability**

Components are not biodegradable.

**12.15. Bioaccumulative potential**

N/A

**12.16. Mobility in soil**

N/A

**12.17. Results of PBT and vPvB assessment**

N/A

**12.18. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.3. Waste treatment methods**

Because scrap materials contains heavy metals should be disposed environmentally friendly, according to local regulations.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.15. UN number**

N/A

**14.16. UN proper shipping name**

N/A

**14.17. Transport hazard class**

N/A

**14.18. Packing group**

N/A

**14.19. Environmental hazards**

N/A

**14.20. Special precautions for user**

N/A

**14.21. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION****12.5. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law.

**12.6. Chemical safety assessment**

A chemical safety assessment for Chrome – Nickel alloys has been performed.

**16. OTHER PRECAUTIONS**

Information included in this document was obtained from sources which we believe are reliable. However, Terrats Medical S.L. does not give any assurance with the view of completeness and validity. Because the conditions or methods of handling, storage, use and/or disposal of this product are beyond the control and knowledge of the manufacturer, he cannot assume responsibility for adverse events which may occur in the use and/or misuse of this product. This Material Safety Data Sheet serves only as guideline for adequate handling of the material by an educated person.



**1. PRODUCT AND COMPANY IDENTIFICATION****1.13. Product identifier**

Martensitic Stainless Steel AISI 420 MOD [Temperable stainless steel alloy added with Nitrogen]

Screwdriver.

**1.14. Relevant identified uses of the substance or mixture and uses advised against**

For various use in dental implantology. Use for dental applications only.

**1.15. Details of the supplier of the safety data sheet**

Terrats Medical SL  
Avda. La Ferrería 62  
08110 Montcada i Reixac, Barcelona  
SPAIN  
info@dess-abutments.com

**1.16. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.10 Classification of the substance or mixture**

Solid Metallic product.

**2.11 Label elements**

N/A

**2.12 Other hazards**

This alloy in his solid state present no inhalation or ingestion health hazard. Inhaling welding fumes, mists or dust which may be generated during certain manufacturing process (melting, welding, burning, sawing, grinding, machining) may be irritating to the respiratory trace. Alloy may be skin sensitizer and cause contact dermatitis. Chromium is classified by International Agency for Research on Cancer (IARC) as possibly carcinogenic to humans. However this information do not apply to the product itself, but only on dust and vapours generated on working with it. Although there are no test data, there are no reported cases of any health problems from exposure to this product. Manganese fume may cause "metal fume fever" with symptoms of fever, nausea, cough, chills, weakness, muscle aches, dry throat and a sweet or metallic taste in the mouth. Prolonged or repeated exposure may affect the nervous system. May also affect the respiratory system with pneumonia-like illness. Vanadium compounds in humans can cause diverse toxic effects on the upper respiratory track. Iron oxide can cause irritation of the eyes, nose and skin. As a normal precaution, excessive dusting or inhalation of fines should be avoided.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.7 Substances**

Cr: 14.0 – 16.0 % (Mass)

Mn: 1.0 % max. (Mass)

Si: 1.0 % max. (Mass)

C: 0.35 – 0.5 % (Mass)  
Ni: 0.5 % max. (Mass)  
P: 0.04 % max. (Mass)  
S: 0.015 % max. (Mass)  
Mo: 1.0 – 2.5 % (Mass)  
V: 1.5 % max. (Mass)  
N: 0.1 – 0.3 % (Mass)  
Fe: BALANCE

### 3.8 Mixtures

N/A

## 4. FIRST AID MEASURES

### 4.10 Description of first aid measures

- **INHALATION:** Supply for fresh air, consult physician upon continuous irritation.
- **EYE CONTACT:** Dust or powder should be flushed from the eyes with running water for 15 minutes to remove particulates. If irritation persists consult physician. Because the alloy is ferromagnetic, a magnet can be used.
- **SKIN CONTACT:** Skin contamination with dust or powder can be removed with soap and water. If irritation develops, consult a physician.
- **INGESTION:** Consult physician.

### 4.11 Most important symptoms and effects, both acute and delayed

- **ACUTE EFFECTS:** Excessive exposure to welding fumes or dust may cause irritation of eyes and nose, and gastrointestinal disorder may occur. Inhalation of manganese fume may cause metal fume fever with symptoms of chills, fever, nausea, cough and a sweet or metallic taste in mouth. Nickel may cause irritation to the upper respiratory tract, nasal cavities and pulmonary asthma. Overexposure to molybdenum causes anaemia, gout-like syndrome and increases uric acid levels. High air concentrations of vanadium dust can cause upper respiratory tract irritation characterized by rhinitis, nasal haemorrhage, wheezing, cough, conjunctivitis, sore throat and chest pain. Vanadium compounds have been reported to cause gastrointestinal effects. The lungs absorb soluble vanadium compounds ( $V_2O_5$ ) well, but the absorption of vanadium salts from the gastrointestinal tract is poor.
- **CHRONIC EFFECTS:** Chromium may cause histologic fibrosis of lungs and lung cancer. Individuals who may have had allergic reactions to metals may encounter contact dermatitis or skin rash, if skin contact occurs. Rare cases of asthma have been reported to have occurred in individuals exposed to some forms of particulates. If the material is absorbed via oral for long period, Manganese may affect central nervous system. Symptoms: difficulty in walking and balancing, cramps or weakness in the legs, trouble with memory or judgement, hoarseness of the voice, unstable emotions or unusual irritability. Intestinal absorption of vanadium is low, less than 5%. The mechanism of absorption has not been defined. Can have adverse effects at high doses on reproduction and development in both males and females.

### 4.12 Indication of any immediate medical attention and special treatment needed

N/A

**5. FIREFIGHTING MEASURES****5.10 Extinguishing media**

CO<sub>2</sub>, powder or inert gas fire extinguisher, foam, water.

**5.11 Special hazards arising from the substance or mixture**

GENERAL FIRE HAZARD: None for solid formed product. Nonflammable.

This solid formed product does not constitute a fire or explosion hazard. At the contrary, if the material is fine divided (powder) it can explode at open air.

**5.12 Advice for firefighters**

A breathing apparatus should be worn when fighting metal dust fires.

**6. ACCIDENTAL RELEASE MEASURES****6.13 Personal precautions, protective equipment and emergency procedures**

Avoid powder formation.

**6.14 Environmental precautions**

No special measure is necessary.

**6.15 Methods and material for containment and cleaning up**

No special procedures needed.

**6.16 Reference to other sections**

N/A

**7. HANDLING AND STORAGE****7.10 Precautions for safe handling**

No protective measures required in condition as delivered.

**7.11 Conditions for safe storage, including any incompatibilities**

No protective measures required in condition as delivered. Keep away from incompatible materials. No other specific storage requirements for solid form product.

**7.12 Specific end use(s)**

N/A

**8. EXPOSURE CONTROLS, PERSONAL PROTECTION****8.7 Control parameters**

N/A

**8.8 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding or welding this material. Use appropriate protective clothing such as welding aprons and gloves when welding or burning.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.7 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/White metallic
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.8 Other information**

N/A

**10. STABILITY AND REACTIVITY****10.19 Reactivity**

This is a stable material.

**10.20 Chemical stability**

No decomposition takes place if used as prescribed.

**10.21 Possibility of hazardous reactions**

Contact with incompatible materials as strong acids may result in the release of gaseous decomposition products (e.g. hydrogen, which is highly explosive if mixed with atmospheric air).

**10.22 Conditions to avoid**

Contact with incompatible materials. Avoid creating finely divided, concentrated airborne particulates in the presence of ignition sources.

**10.23 Incompatible materials**

Strong Acids, Strong Oxidizing Agents.

**10.24 Hazardous decomposition products**

Metal oxide fumes.

**11. TOXICOLOGY INFORMATION****11.4. Information on toxicological effects**

No dangerous reactions have been reported by exposure to massive forms of stainless steel alloys. If however, converted to particulates then both acute and chronic health hazards are possible.

**12. ECOLOGICAL INFORMATION****12.19. Toxicity**

Stainless steel alloy is solid, compact and not soluble in water. Non-hazardous if not discarded.

**12.20. Persistence and degradability**

Components are not biodegradable.

**12.21. Bioaccumulative potential**

N/A

**12.22. Mobility in soil**

N/A

**12.23. Results of PBT and vPvB assessment**

N/A

**12.24. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.4. Waste treatment methods**

Because scrap materials contains heavy metals should be disposed environmentally friendly, according to local regulations.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.22. UN number**

N/A

**14.23. UN proper shipping name**

N/A

**14.24. Transport hazard class**

N/A

**14.25. Packing group**

N/A

**14.26. Environmental hazards**

N/A

**14.27. Special precautions for user**

N/A

**14.28. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION****12.7. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law.

**12.8. Chemical safety assessment**

A chemical safety assessment for stainless steel alloys has been performed.

**16. OTHER PRECAUTIONS**

Information included in this document was obtained from sources which we believe are reliable. However, Terrats Medical S.L. does not give any assurance with the view of completeness and validity. Because the conditions or methods of handling, storage, use and/or disposal of this product are beyond the control and knowledge of the manufacturer, he cannot assume responsibility for adverse events which may occur in the use and/or misuse of this product. This Material Safety Data Sheet serves only as guideline for adequate handling of the material by an educated person.

**1. PRODUCT AND COMPANY IDENTIFICATION****1.17. Product identifier**

Cobalt-Chromium-Molybdenum alloy

CoCr Personalized Abutment, CoCr Castable Abutment.

**1.18. Relevant identified uses of the substance or mixture and uses advised against**

For various use in dental implantology. Use for dental applications only.

**1.19. Details of the supplier of the safety data sheet**

Terrats Medical SL

Avda. La Ferrería 62

08110 Montcada i Reixac, Barcelona

SPAIN

info@dess-abutments.com

**1.20. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.13 Classification of the substance or mixture**

Solid Metallic product.

**2.14 Label elements**

N/A

**2.15 Other hazards**

Cobalt-Chromium-Molybdenum alloys in their solid state present no inhalation or ingestion health hazard. Inhaling welding fumes, mists or dust which may be generated during certain manufacturing process (melting, welding, burning, sawing, grinding, machining) may be irritating to the respiratory tract. Alloy may be skin sensitizer and cause contact dermatitis. International Agency for Research on Cancer (IARC) lists Chromium and Nickel as possibly carcinogenic to humans. However this information do not apply to the product itself, but only on dust and vapours generated on working with it. Although there are no test data, there are no reported cases of any health problems from exposure to this product. As a normal precaution, excessive dusting or inhalation of fines should be avoided.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.9 Substances**

Cr: 26.0 – 30.0 % (Mass)

Mo: 5.0 – 7.0 % (Mass)

Fe: 0.75 % max. (Mass)

Mn: 1 % max. (Mass)

Si: 1.0 % max. (Mass)

C: 0.14 % max. (Mass)

Ni: 0.5 % max. (Mass)

N: 0.25 % max. (Mass)

Co: BALANCE

### 3.10 Mixtures

N/A

## 4. FIRST AID MEASURES

### 4.13 Description of first aid measures

- **INHALATION:** Supply for fresh air, consult physician upon continuous irritation.
- **EYE CONTACT:** Dust or powder should be flushed from the eyes with running water for 15 minutes to remove particulates. If irritation persists consult physician.
- **SKIN CONTACT:** Skin contamination with dust or powder can be removed with soap and water. If irritation develops, consult a physician.
- **INGESTION:** Consult physician.

### 4.14 Most important symptoms and effects, both acute and delayed

- **ACUTE EFFECTS:** Excessive exposure to welding fumes or dust may cause irritation of eyes and nose, and gastrointestinal disorder may occur. After ingestion – cobalt chrome alloys are scarcely absorbed by the intestine, acute dose may cause abdominal pains, vomit, uraemia and anuria. Inhalation of manganese fume may cause metal fume fever with symptoms of chills, fever, nausea, cough and a sweet or metallic taste in mouth. Overexposure to molybdenum causes anaemia, gout-like syndrome and increases uric acid levels.
- **CHRONIC EFFECTS:** Individuals who may have had allergic reactions to metals may encounter contact dermatitis or skin rash, if skin contact occurs. Rare cases of asthma have been reported to have occurred in individuals exposed to some forms of particulates. If the material is absorbed via oral for long period, kidney harm may occur. Chromium may cause histologic fibrosis of lungs and lung cancer. Manganese may affect central nervous system. Symptoms: difficulty in walking and balancing, cramps or weakness in the legs, trouble with memory or judgement, hoarseness of the voice, unstable emotions or unusual irritability.

### 4.15 Indication of any immediate medical attention and special treatment needed

N/A

## 5. FIREFIGHTING MEASURES

### 5.13 Extinguishing media

CO<sub>2</sub>, powder or inert gas fire extinguisher, foam, water.

### 5.14 Special hazards arising from the substance or mixture

**GENERAL FIRE HAZARD:** None for solid formed product. Nonflammable. This solid formed product does not constitute a fire or explosion hazard. At the contrary, if the material is fine divided (powder) it can explode at open air.

### 5.15 Advice for firefighters

A breathing apparatus should be worn when fighting metal dust fires.

**6. ACCIDENTAL RELEASE MEASURES****6.17 Personal precautions, protective equipment and emergency procedures**

Avoid powder formation.

**6.18 Environmental precautions**

No special measure is necessary.

**6.19 Methods and material for containment and cleaning up**

No special procedures needed.

**6.20 Reference to other sections**

N/A

**7. HANDLING AND STORAGE****7.13 Precautions for safe handling**

No protective measures required in condition as delivered.

**7.14 Conditions for safe storage, including any incompatibilities**

No protective measures required in condition as delivered. Keep away from incompatible materials. No other specific storage requirements for solid form product.

**7.15 Specific end use(s)**

N/A

**8. EXPOSURE CONTROLS, PERSONAL PROTECTION****8.9 Control parameters**

N/A

**8.10 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding or welding this material. Use appropriate protective clothing such as welding aprons and gloves when welding or burning.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.9 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/White metallic
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.10 Other information**

N/A



**10. STABILITY AND REACTIVITY****10.25 Reactivity**

This is a stable material.

**10.26 Chemical stability**

No decomposition takes place if used as prescribed.

**10.27 Possibility of hazardous reactions**

Contact with incompatible materials as strong acids may result in the release of gaseous decomposition products (e.g. hydrogen, which is highly explosive if mixed with atmospheric air).

**10.28 Conditions to avoid**

Contact with incompatible materials. Avoid creating finely divided, concentrated airborne particulates in the presence of ignition sources.

**10.29 Incompatible materials**

Strong Acids, Strong Oxidizing Agents, Perchlorate, Nitrate, Hydrazine, Alkali.

**10.30 Hazardous decomposition products**

Metal oxide fumes.

**11. TOXICOLOGY INFORMATION****11.5. Information on toxicological effects**

No dangerous reactions have been reported by exposure to massive forms of cobalt chrome alloys. If however, converted to particulates then both acute and chronic health hazards are possible.

**12. ECOLOGICAL INFORMATION****12.25. Toxicity**

Cobalt-Chrome alloy is solid, compact and not soluble in water. Non-hazardous.

**12.26. Persistence and degradability**

Components are not biodegradable.

**12.27. Bioaccumulative potential**

N/A

**12.28. Mobility in soil**

N/A

**12.29. Results of PBT and vPvB assessment**

N/A

**12.30. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.5. Waste treatment methods**

Because scrap materials contains heavy metals should be disposed environmentally friendly, according to local regulations. However dental alloys are not considered as dangerous goods.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.29. UN number**

N/A

**14.30. UN proper shipping name**

N/A

**14.31. Transport hazard class**

N/A

**14.32. Packing group**

N/A

**14.33. Environmental hazards**

N/A

**14.34. Special precautions for user**

N/A

**14.35. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION****12.9. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law.

**12.10. Chemical safety assessment**

A chemical safety assessment for Cobalt-Chrome alloys has been performed.

**16. OTHER PRECAUTIONS**

Information included in this document was obtained from sources which we believe are reliable. However, Terrats Medical S.L. does not give any assurance with the view of completeness and validity. Because the conditions or methods of handling, storage, use and/or disposal of this product are beyond the control and knowledge of the manufacturer, he cannot assume responsibility for adverse events which may occur in the use and/or misuse of this product. This Material Safety Data Sheet serves only as guideline for adequate handling of the material by an educated person.

**1. PRODUCT AND COMPANY IDENTIFICATION****1.21. Product identifier**

Chromium Carbonitride coating [CrCN, Diamond-Like Carbon]

DLC coated Occlusal Screws.

**1.22. Relevant identified uses of the substance or mixture and uses advised against**

For various use in dental implantology. Use for dental applications only.

**1.23. Details of the supplier of the safety data sheet**

Terrats Medical SL  
Avda. La Ferrería 62  
08110 Montcada i Reixac, Barcelona  
SPAIN  
info@dess-abutments.com

**1.24. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.16 Classification of the substance or mixture**

Solid product.

**2.17 Label elements**

N/A

**2.18 Other hazards**

No toxic effects would be expected from exposure to the solid form of Chromium Carbonitride coated surfaces. However, inhaling welding fumes, mists or dust which may be generated during certain manufacturing process (melting, welding, burning, sawing, grinding, machining) may cause adverse health effects. Dusts may be also irritating to the unprotected skin or eyes. Some studies would associate elements from various substrate materials with the potential for pulmonary, neurologic, respiratory or skin disease. Chromium in various chemical compounds have been identified as suspect human carcinogens by the I.A.R.C. Users of coated screws and implant elements should check MSDS Sheets for substrate material for possible health hazard effects from material of coated object.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.11 Substances**

CrCN

**3.12 Mixtures**

N/A

**4. FIRST AID MEASURES****4.16 Description of first aid measures**

Depending on route of entry:

- **INHALATION:** Immediately remove victim to fresh air. If condition persists, consult physician.
- **EYE CONTACT:** Immediately flush with running water to remove particulates, consult physician.
- **SKIN CONTACT:** If irritation develops, wash with soap and water. If condition persists, consult a physician.
- **INGESTION:** Consult physician.

#### **4.17 Most important symptoms and effects, both acute and delayed**

- **ACUTE EFFECTS:** Excessive exposure to welding fumes or dust may cause irritation of eyes, nose, throat or skin, metallic taste, fever, nausea, tightness of chest.
- **CHRONIC EFFECTS:** Prolonged inhalation of welding fumes or dusts may cause skin sensitization, neurological damage and respiratory disease such as bronchial asthma, lung fibrosis or pneumoconiosis. Chromium with its compounds have been identified as carcinogen.

#### **4.18 Indication of any immediate medical attention and special treatment needed**

N/A

### **5. FIREFIGHTING MEASURES**

#### **5.16 Extinguishing media**

Use a D-Class fire extinguisher, dry sand, dry graphite, or inert gas.

#### **5.17 Special hazards arising from the substance or mixture**

**GENERAL FIRE HAZARD:** None for solid formed product. Nonflammable.

This solid formed product does not constitute a fire or explosion hazard. Finely divided chips may present a fire and explosion hazard in the presence of an ignition source. In case of fire, NO<sub>x</sub> can be released.

#### **5.18 Advice for firefighters**

Do not use water extinguishers.

### **6. ACCIDENTAL RELEASE MEASURES**

#### **6.21 Personal precautions, protective equipment and emergency procedures**

None

#### **6.22 Environmental precautions**

None

#### **6.23 Methods and material for containment and cleaning up**

No special procedures needed.

#### **6.24 Reference to other sections**

N/A

### **7. HANDLING AND STORAGE**

**7.16 Precautions for safe handling**

No protective measures required in condition as delivered.

**7.17 Conditions for safe storage, including any incompatibilities**

No protective measures required in condition as delivered. Keep away from incompatible materials (see section 10). No other specific storage requirements for solid form product.

**7.18 Specific end use(s)**

N/A

**8. EXPOSURE CONTROLS, PERSONAL PROTECTION****8.11 Control parameters**

N/A

**8.12 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding or welding this material. Use appropriate protective clothing such as welding aprons and gloves when welding or burning.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.11 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/Shiny black coating
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.12 Other information**

N/A

**10. STABILITY AND REACTIVITY****10.31 Reactivity**

Stable under normal conditions of use, storage and transport for solid product.

**10.32 Chemical stability**

No decomposition takes place if used as prescribed.

**10.33 Possibility of hazardous reactions**

Contact with certain acids may result in the release of gaseous acid decomposition products (e.g. hydrogen).

**10.34 Conditions to avoid**

Contact with incompatible materials. Avoid creating finely divided, concentrated airborne particulates in the presence of ignition sources.

**10.35 Incompatible materials**

Strong Acids, Strong Oxidizing Agents.

**10.36 Hazardous decomposition products**

No dangerous decomposition products are known. Welding fumes, gases and dusts may occur through treatment of the surface, including metallic oxide fumes and nitrogen oxides. Reaction with water, steam, acids, etc. can evolve hydrogen.

**11. TOXICOLOGY INFORMATION****11.6. Information on toxicological effects**

Chromium Carbonitride in its coating form is not toxic and is a class of materials with excellent mechanical, tribological and biological properties. Today, two main fields of biological applications of DLC can be seen: in blood contacting implants such as stents and heart valves and the use of DLC to reduce wear in load bearing joints. Several different research groups confirmed the biocompatibility of DLC.

**12. ECOLOGICAL INFORMATION****12.31. Toxicity**

Chromium Carbonitride is solid, compact and not soluble in water. Non-hazardous.

**12.32. Persistence and degradability**

N/A

**12.33. Bioaccumulative potential**

N/A

**12.34. Mobility in soil**

N/A

**12.35. Results of PBT and vPvB assessment**

N/A

**12.36. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.6. Waste treatment methods**

Scrap materials should be recycled, according to local regulations.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.36. UN number**

N/A

**14.37. UN proper shipping name**

N/A

**14.38. Transport hazard class**

N/A

**14.39. Packing group**

N/A

**14.40. Environmental hazards**

N/A

**14.41. Special precautions for user**

N/A

**14.42. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION**

**12.11. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law.

**12.12. Chemical safety assessment**

A chemical safety assessment for CrCN has been performed.

**16. OTHER PRECAUTIONS**

Information included in this document was obtained from sources which we believe are reliable. However, Terrats Medical S.L. does not give any assurance with the view of completeness and validity. Because the conditions or methods of handling, storage, use and/or disposal of this product are beyond the control and knowledge of the manufacturer, he cannot assume responsibility for adverse events which may occur in the use and/or misuse of this product. This Material Safety Data Sheet serves only as guideline for adequate handling of the material by an educated person.

**1. PRODUCT AND COMPANY IDENTIFICATION****1.25. Product identifier**

Gold-Palladium alloy [Cendres-Métaux Ceramicor®]

Gold UCLA.

**1.26. Relevant identified uses of the substance or mixture and uses advised against**

For various use in dental implantology. Use for dental applications only.

**1.27. Details of the supplier of the safety data sheet**

Terrats Medical SL  
Avda. La Ferrería 62  
08110 Montcada i Reixac, Barcelona  
SPAIN  
info@dess-abutments.com

**1.28. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.19 Classification of the substance or mixture**

Solid Metallic product.

**2.20 Label elements**

N/A

**2.21 Other hazards**

Gold-Palladium alloys in their solid state present no inhalation or ingestion health hazard. However, inhaling welding fumes, mists or dust which may be generated during certain manufacturing process (melting, welding, burning, sawing, grinding, machining) may be irritating to the respiratory tract. Alloy may be skin sensitizer and cause contact dermatitis. Palladium compounds have caused bone marrow, liver and kidney damage in experimental animals.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.13 Substances**

Au: 60 % (Mass)

Pd: 20 % (Mass)

Pt: 19 % (Mass)

Ir: 1 % (Mass)

**3.14 Mixtures**

N/A

**4. FIRST AID MEASURES****4.19 Description of first aid measures**

- INHALATION: Supply for fresh air, consult physician upon continuous irritation.



- EYE CONTACT: Dust or powder should be flushed from the eyes with running water for 15 minutes to remove particulates. If irritation persists consult physician.
- SKIN CONTACT: Skin contamination with dust or powder can be removed with soap and water. If irritation develops, consult a physician.
- INGESTION: Consult physician.

**4.20 Most important symptoms and effects, both acute and delayed**

- ACUTE EFFECTS: Excessive exposure to welding fumes or dust may cause irritation of eyes and nose.
- CHRONIC EFFECTS: Individuals who may have had allergic reactions to metals may encounter contact dermatitis or skin rash, if skin contact occurs. In experimental animals palladium compounds have caused bone marrow, kidney and liver damage.

**4.21 Indication of any immediate medical attention and special treatment needed**

N/A

**5. FIREFIGHTING MEASURES****5.19 Extinguishing media**CO<sub>2</sub>, powder or inert gas fire extinguisher, water.**5.20 Special hazards arising from the substance or mixture**

GENERAL FIRE HAZARD: None for solid formed product. Nonflammable.

This solid formed product does not constitute a fire or explosion hazard. Dust may present a fire and explosion hazard in the presence of an ignition source.

**5.21 Advice for firefighters**

A breathing apparatus should be worn when fighting metal dust fires.

**6. ACCIDENTAL RELEASE MEASURES****6.25 Personal precautions, protective equipment and emergency procedures**

None

**6.26 Environmental precautions**

None

**6.27 Methods and material for containment and cleaning up**

No special procedures needed.

**6.28 Reference to other sections**

N/A

**7. HANDLING AND STORAGE****7.19 Precautions for safe handling**

No protective measures required in condition as delivered.

**7.20 Conditions for safe storage, including any incompatibilities**

No protective measures required in condition as delivered. Keep away from incompatible materials. No other specific storage requirements for solid form product.

**7.21 Specific end use(s)**  
N/A

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

**8.13 Control parameters**  
N/A

**8.14 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding or welding this material. Use appropriate protective clothing such as welding aprons and gloves when welding or burning.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**9.13 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/White metallic
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.14 Other information**  
N/A

## 10. STABILITY AND REACTIVITY

**10.37 Reactivity**

This is a stable material.

**10.38 Chemical stability**

No decomposition takes place if used as prescribed.

**10.39 Possibility of hazardous reactions**

Contact with certain acids may result in the release of gaseous decomposition products (e.g. nitrogen monoxide – irritating and oxidizing gas).

**10.40 Conditions to avoid**

Contact with incompatible materials. Avoid creating finely divided, concentrated airborne particulates in the presence of ignition sources.

**10.41 Incompatible materials**

Strong Acids, Strong Oxidizing Agents, Ammonia, Acetylene.

**10.42 Hazardous decomposition products**

Metal oxide fumes. Nitrogen monoxide, which is a strong oxidizer.

## 11. TOXICOLOGY INFORMATION

**11.7. Information on toxicological effects**

No dangerous reactions have been reported by proper use of the product.

**12. ECOLOGICAL INFORMATION****12.37. Toxicity**

Gold-Palladium alloy is solid, compact and not soluble in water. Non-hazardous.

**12.38. Persistence and degradability**

Inorganic components are not biodegradable.

**12.39. Bioaccumulative potential**

N/A

**12.40. Mobility in soil**

N/A

**12.41. Results of PBT and vPvB assessment**

N/A

**12.42. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.7. Waste treatment methods**

Because of its high intrinsic value this material should be reclaimed. Scrap materials can be used again after treatment, according to local regulations.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.43. UN number**

N/A

**14.44. UN proper shipping name**

N/A

**14.45. Transport hazard class**

N/A

**14.46. Packing group**

N/A

**14.47. Environmental hazards**

N/A

**14.48. Special precautions for user**

N/A

**14.49. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION****12.13. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law.

**12.14. Chemical safety assessment**

A chemical safety assessment for Gold-Palladium alloys has been performed.

#### **16. OTHER PRECAUTIONS**

Information included in this document was obtained from sources which we believe are reliable. However, Terrats Medical S.L. does not give any assurance with the view of completeness and validity. Because the conditions or methods of handling, storage, use and/or disposal of this product are beyond the control and knowledge of the manufacturer, he cannot assume responsibility for adverse events which may occur in the use and/or misuse of this product. This Material Safety Data Sheet serves only as guideline for adequate handling of the material by an educated person.

**1. PRODUCT AND COMPANY IDENTIFICATION****1.29. Product identifier**

Polyether ether ketone [Polyetheretherketone, PEEK]

Scan Abutment.

**1.30. Relevant identified uses of the substance or mixture and uses advised against**

For use in dental CAD technology. Use for dental applications only.

**1.31. Details of the supplier of the safety data sheet**

Terrats Medical SL  
Avda. La Ferrería 62  
08110 Montcada i Reixac, Barcelona  
SPAIN  
info@dess-abutments.com

**1.32. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.22 Classification of the substance or mixture**

Solid thermoplastic product.

**2.23 Label elements**

N/A

**2.24 Other hazards**

This product is essentially inert and non-toxic and present no inhalation, ingestion or contact health hazard. Molten polymer will adhere to skin and cause severe burns. Spilled material may create a slipping hazard.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.15 Substances**

Polyether ether ketone

**3.16 Mixtures**

N/A

**4. FIRST AID MEASURES****4.22 Description of first aid measures**

- **INHALATION:** After accidental inhalation of fumes remove victim to fresh air.
- **EYE CONTACT:** Immediately flush with running water to remove particulates, consult physician.
- **SKIN CONTACT:** If hot or molten polymer contact skin, cool rapidly with cold water. If polymer is stuck to skin, do not remove. Allow adhered polymer to come off naturally. Cover burns with sterile dressings and seek medical attention. Removal of adhered polymer may result in more tissue damage than if polymer is allowed coming off over time.

- INGESTION: No treatment necessary.

**4.23 Most important symptoms and effects, both acute and delayed**

N/A

**4.24 Indication of any immediate medical attention and special treatment needed**

N/A

## 5. FIREFIGHTING MEASURES

**5.22 Extinguishing media**

Water, foam, dry powder, carbon dioxide.

**5.23 Special hazards arising from the substance or mixture**

In case of fire this product can develop oxides of carbon. Ignites in a flame but smoke emission is low. Dust is ignitable but will not sustain combustion. A high temperature source of ignition is needed. Insensitive to sparks.

**5.24 Advice for firefighters**

Firefighters should wear proper respiratory protective equipment with independent air supply.

## 6. ACCIDENTAL RELEASE MEASURES

**6.29 Personal precautions, protective equipment and emergency procedures**

Pellets may cause slippage and falling.

**6.30 Environmental precautions**

This material does not harm the environment but is not biologically degradable. Prevent surface and ground water infiltration, as well as ground penetration.

**6.31 Methods and material for containment and cleaning up**

Take up mechanically and place in suitable, closable container for disposal, avoiding formation of dust.

**6.32 Reference to other sections**

N/A

## 7. HANDLING AND STORAGE

**7.22 Precautions for safe handling**

General hygiene measures for the handling of chemicals are applicable. Avoid build-up of dust – dust can be potentially explosive.

**7.23 Conditions for safe storage, including any incompatibilities**

PEEK polymers are very stable and the polymer's properties will remain over a period up to 20 years.

**7.24 Specific end use(s)**

N/A

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

**8.15 Control parameters**

N/A

**8.16 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding. Molten material can cause thermal burns on contact with skin or eyes.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.15 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/Tanned brown
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.16 Other information**

- MELTING POINT RANGE: 343°C
- DECOMPOSITION TEMPERATURE: > 450°C
- IGNITION TEMPERATURE: > 575°C

**10. STABILITY AND REACTIVITY****10.43 Reactivity**

Stable under normal conditions of use, storage and transport for solid product.

**10.44 Chemical stability**

No decomposition takes place under normal and anticipated storage and handling conditions.

**10.45 Possibility of hazardous reactions**

N/A

**10.46 Conditions to avoid**

Contact with concentrated Sulphuric acid.

**10.47 Incompatible materials**

Sulphuric acid (material dissolvent)

**10.48 Hazardous decomposition products**

Carbon-monoxide (depending on the amount of available environmental oxygen)

**11. TOXICOLOGY INFORMATION****11.8. Information on toxicological effects**

Harmless. This material is not considered as being harmful to human health.

**12. ECOLOGICAL INFORMATION****12.43. Toxicity**

The product is not toxic, but small particles can have physical effects in aquatic and soil organisms. Because of insolubility in water separation by filtration or sedimentation is possible.

**12.44. Persistence and degradability**

The product is not biodegradable, do not throw out in the environment.

**12.45. Bioaccumulative potential**

N/A

**12.46. Mobility in soil**

N/A

**12.47. Results of PBT and vPvB assessment**

N/A

**12.48. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.8. Waste treatment methods**

Product waste can be mixed with household waste and incinerated in an appropriate place, according to local regulations.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.50. UN number**

N/A

**14.51. UN proper shipping name**

N/A

**14.52. Transport hazard class**

N/A

**14.53. Packing group**

N/A

**14.54. Environmental hazards**

N/A

**14.55. Special precautions for user**

N/A

**14.56. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION****12.15. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law. No labelling needed.

**12.16. Chemical safety assessment**

A chemical safety assessment for PEEK has been performed.



**16. OTHER PRECAUTIONS**

Information included in this document was obtained from sources which we believe are reliable. However, Terrats Medical S.L. does not give any assurance with the view of completeness and validity. Because the conditions or methods of handling, storage, use and/or disposal of this product are beyond the control and knowledge of the manufacturer, he cannot assume responsibility for adverse events which may occur in the use and/or misuse of this product. This Material Safety Data Sheet serves only as guideline for adequate handling of the material by an educated person.

**1. PRODUCT AND COMPANY IDENTIFICATION****1.33. Product identifier**

Polyoxymethylene [Polyoxymethylene copolymer, Acetal, Polyacetal, POM]

Castable Abutment, Plastic Sleeve for Gold UCLA, Plastic Sleeve for Titanium Interface, Plastic Sleeve for CoCr Castable Abutment, Multiunit Plastic Carrier.

**1.34. Relevant identified uses of the substance or mixture and uses advised against**

For various use in dental implantology. Use for dental applications only.

**1.35. Details of the supplier of the safety data sheet**

Terrats Medical SL  
Avda. La Ferrería 62  
08110 Montcada i Reixac, Barcelona  
SPAIN  
info@dess-abutments.com

**1.36. Emergency telephone number**

+34 935 646 006

**2. HAZARDS IDENTIFICATION****2.25 Classification of the substance or mixture**

Solid thermoplastic product.

**2.26 Label elements**

N/A

**2.27 Other hazards**

POM in solid state present no inhalation, ingestion or contact health hazard. Spilled material may create a slipping hazard. Combustion and decomposition may produce hazardous fumes. If overheated the polymer releases formaldehyde which may cause skin, eye and respiratory irritation and allergic reactions. Molten material can cause thermal burns on contact with skin or eyes. Possible production of electrostatic chargings when used.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****3.17 Substances**

Based on polyoxymethylene copolymer 99 % <

**3.18 Mixtures**

N/A

**4. FIRST AID MEASURES****4.25 Description of first aid measures**

- **INHALATION:** After accidental inhalation of fumes or thermal decomposition, using self-protection, remove victim to fresh air. If necessary apply artificial respiration and seek medical help. Keep the victim quiet and warm.

- **EYE CONTACT:** Immediately flush with running water to remove particulates, consult physician.
- **SKIN CONTACT:** If hot or molten polymer or hot vapors contact skin, cool rapidly with cold water. If polymer is stuck to skin, do not remove. Allow adhered polymer to come off naturally. Cover burns with sterile dressings and seek medical attention. Removal of adhered polymer may result in more tissue damage than if polymer is allowed coming off over time.
- **INGESTION:** If significant quantity has been swallowed, give two glasses of water to dilute and induce vomiting. Consult physician.

#### **4.26 Most important symptoms and effects, both acute and delayed**

- **ACUTE EFFECTS:** POM itself is not hazardous. During melting or combustion formaldehyde gas can be formed. Exposures to the formaldehyde vapors can cause eyes, nose, mouth, throat and lungs sensitization and irritation. The melted plastic will cause burns if exposed to skin.
- **CHRONIC EFFECTS:** Long term overexposure to formaldehyde vapors is known to cause a rare form of cancer within the nasal area – nasopharyngeal cancer.

#### **4.27 Indication of any immediate medical attention and special treatment needed**

In case of severe formaldehyde poisoning resuscitation may be needed.

### **5. FIREFIGHTING MEASURES**

#### **5.25 Extinguishing media**

Water, foam, dry powder, carbon dioxide.

#### **5.26 Special hazards arising from the substance or mixture**

This product ignites in a flame and continues to burn on removal of the source. In case of fire and/or explosion do not inhale fumes. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Toxic gases will form upon combustion of: carbon monoxide, carbon dioxide and formaldehyde. Powdered material may form explosive dust-air mixtures.

#### **5.27 Advice for firefighters**

Firefighters should wear proper protective equipment (i.e. chemical-cartridge respirator, gas mask).

### **6. ACCIDENTAL RELEASE MEASURES**

#### **6.33 Personal precautions, protective equipment and emergency procedures**

Do not breathe dust. Avoid ignition sources. Avoid contact with skin, eye and clothing. Pellets may cause slippage and falling.

#### **6.34 Environmental precautions**

Prevent contamination of soil, drains and ignition sources.

#### **6.35 Methods and material for containment and cleaning up**

Take up mechanically and place in suitable, closable container for disposal, avoiding formation of dust.

#### **6.36 Reference to other sections**

N/A

**7. HANDLING AND STORAGE****7.25 Precautions for safe handling**

When bringing the material to processing temperatures gases might develop. If processing requires preheating or combustion use proper extraction. Avoid dust formation and ignition sources.

**7.26 Conditions for safe storage, including any incompatibilities**

Protect from heat and sunrays. Store in a dry place. No protective measures required in condition as delivered. No other specific storage requirements for solid form product.

**7.27 Specific end use(s)**

N/A

**8. EXPOSURE CONTROLS, PERSONAL PROTECTION****8.17 Control parameters**

N/A

**8.18 Exposure controls**

Wear eye/face protection and respiratory protection when cutting or grinding. Molten material can cause thermal burns on contact with skin or eyes. Formaldehyde vapors prolonged exposure adverse effects on kidneys, liver and thyroid were observed. Do not eat or drink while working. No smoking. Provide system for collecting the vapours which are created during the working process if exposed to temperatures above 193°C.

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.17 Information on basic physical and chemical properties**

- APPEARANCE/COLOUR: Solid/Milk white
- ODOUR: Odourless
- pH-VALUE: N/E
- SOLUBILITY IN WATER: Insoluble

**9.18 Other information**

- MELTING POINT RANGE: 163-165°C
- DECOMPOSITION TEMPERATURE: > 240°C
- IGNITION TEMPERATURE: > 320°C

**10. STABILITY AND REACTIVITY****10.49 Reactivity**

Stable under normal conditions of use, storage and transport for solid product.

**10.50 Chemical stability**

No decomposition takes place under normal and anticipated storage and handling conditions.

**10.51 Possibility of hazardous reactions**

Contact with certain acids, oxidizing agents or chlorine containing polymers like PVC may result in the release of formaldehyde and other decomposition products.

**10.52 Conditions to avoid**

Contact with incompatible materials, temperatures > 240°C (Start of the thermal decomposition).

**10.53 Incompatible materials**

Strong acids, oxidizing agents, halogens, PVC.

**10.54 Hazardous decomposition products**

Formaldehyde, Trioxane, Carbon-monoxide, formic acid.

**11. TOXICOLOGY INFORMATION****11.9. Information on toxicological effects**

In solid state in temperature < 240°C there are no known dangers. In case of combusting or processing > 240°C product can generate toxic vapours and gases.

- RESPIRATORY TRACT / EYE ACUTE TOXICITY: Vapours and gases of the product can have an irritant effect to the respiratory track, eyes and lungs. Formaldehyde is highly irritating and repeated exposure may lead to sensitization in some individuals. Formaldehyde overexposure can cause symptoms of bronchial asthma. Inhalation may cause irritation to the respiratory tract, breathing difficulties, coughing, pneumonitis and pulmonary edema.
- DERMAL ACUTE TOXICITY: Unknown.
- INHALATION ACUTE TOXICITY: See previous point.
- SKIN/EYE/RESPIRATORY TRACT IRRITATION/SENSITIZATION: In solid state not irritating/Not sensitizing.
- MUTAGENICITY: Not mutagen.
- CARCINOGENICITY: Not carcinogen. Formaldehyde released in small quantity during melting and processing is classified as a carcinogen and has OSHA & ACGIH permissible exposure limits.

**12. ECOLOGICAL INFORMATION****12.49. Toxicity**

The product is not toxic, but small particles can have physical effects in aquatic and soil organisms. Because of insolubility in water separation by filtration or sedimentation is possible.

**12.50. Persistence and degradability**

The product is not biodegradable, do not throw out in the environment.

**12.51. Bioaccumulative potential**

N/A

**12.52. Mobility in soil**

N/A

**12.53. Results of PBT and vPvB assessment**

N/A

**12.54. Other adverse effects**

N/A

**13. DISPOSAL CONSIDERATIONS****13.9. Waste treatment methods**

Product waste can be mixed with household waste and incinerated in an appropriate place, according to local regulations.

**14. TRANSPORT INFORMATION**

No special regulations, transport as non-hazardous goods.

**14.57. UN number**

N/A

**14.58. UN proper shipping name**

N/A

**14.59. Transport hazard class**

N/A

**14.60. Packing group**

N/A

**14.61. Environmental hazards**

N/A

**14.62. Special precautions for user**

N/A

**14.63. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

N/A

**15. REGULATORY INFORMATION****12.17. Safety, health and environmental regulations/legislation specific for the substance or mixture**

According to local law. No labelling needed.

**12.18. Chemical safety assessment**

A chemical safety assessment for Polyoxymethylene has been performed.

**16. OTHER PRECAUTIONS**

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